DOCUMENT RESUME

ED 363 400 PS 021 528

AUTHOR	Troccoli, Karen B.
TITLE	Eat To Learn, Learn To Eat: The Link between Nutrition and Learning in Children. National Health/Education Consortium Occasional Paper No. 7.
INSTITUTION	Institute for Educational Leadership, Washington, D.C.; National Commission To Prevent Infant Mortality, Washington, DC.
SPONS AGENCY	American School Food Service Association, Denver, Colo.; Prudential Foundation, Newark, N.J.
PUB DATE	Apr 93
NOTE	47p.
AVAILABLE FROM	National Commission to Prevent Infant Mortality, 330 C Street, S.W., Switzer Building, Room 2014, Washington, DC 20201.
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Breakfast Programs; Child Development; *Child Health; Community Involvement; Eating Habits; Economically Disadvantaged; Elementary Secondary Education; Federal Programs; Government Role; *Health Education; *Learning; Lunch Programs; *Nutrition; Nutrition Instruction; Parent School Relationship; Program Descriptions; *Program Improvement; Young Children
IDENTIFIERS	*Child Nutrition Programs

ABSTRACT

Noting that children of all socioeconomic levels are at risk for poor nutrition, and that hunger and poor nutrition in America are on the rise, this report reviews what is known about the link between nutrition and learning in children and between nutrition education and eating habits. It describes several federal and non-federal government initiatives intended to address children's nutritional status, and examines their effectiveness and deficits. Federal programs discussed are the: (1) Food Stamp Program; (2) Special Supplemental Food Program for Women, Infants and Children (WIC); (3) Child and Adult Food Care Program; (4) National School Lunch Program and School Breakfast Program; (5) Summer Food Service Program for Children; and (6) Nutrition Education and Training Program. Non-federal programs discussed are the Training Table (Oregon), the LunchPower! Program (Minnesota), and the Healthy EDGE: Eating, Dietary Guidelines and Education program. Also discussed are the National Food Service Management Institute, a nutrition guide, and a set of nutrition education curricula. The report recommends collaboration and cooperation between public and private agencies, parents, schools, and health professionals in order to help increase funding for and to expand effective child nutrition programs, reduce the red tape and administrative requirements for federal programs, and expand and enhance child nutrition initiatives. Contains 46 references. (SM)

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Eat to Learn, Learn to Eat:
The Link Between Nutrition and Learning in Children

*National Health/Education Consortium**
Occasional Paper #7

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The National Health/Education Consortium would like to thank the American Cancer Society for its generous support of "Eat to Learn, Learn to Eat: The Link Between Nutrition and Learning in Children."

Eat to Learn, Learn to Eat:

The Link Between Nutrition and Learning in Children

*National Health/Education Consortium**
Occasional Paper #7

by

Karen B. Troccoli
National Commission to Prevent Infant Mortality

This occasional paper series is supported by the **Prudential Foundation**. Additional support for *Eat to Learn, Learn to Eat: The Link Between Nutrition and Learning in Children* was provided by the **American School Food Service Association.**

* *The National Health/Education Consortium is managed jointly by the National Commission to Prevent Infant Mortality and the Institute for Educational Leadership*

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Acknowledgements

The National Health/Education Consortium would like to thank the following people for sharing their time and expertise during the development of this report: Dorothy Caldwell, American School Food Service Association; Lynn Parker and Geri Henchy, Food Research and Action Center; Alan Meyers and Barbara Boardman, Boston City Hospital; and Karen Simmons Gillian, California Department of Education.

We would like to thank the Prudential Foundation for its ongoing support of the National Health/Education Consortium.

We also would like to thank the American School Food Service Association for their generous financial support for *Eat to Learn, Learn to Eat: The Link Between Nutrition and Learning in Children.*

Executive Summary

The quality of nutrition in childhood — and even before birth — affects children's ability to learn and function in later life. With that in mind, it is particularly alarming that hunger and poor nutrition are on the rise in the United States. Whatever the exact cause of these trends among children, the consequences can be serious.

Studies have demonstrated a link between poor nutrition and learning in children, leading researchers to report that well-fed children learn better than poorly fed children. Furthermore, studies indicate that children's eating habits and attitudes about food develop early and last a lifetime.

Many public and private programs are in place that address children's nutrition and nutrition education. Examples of public initiatives include the National School Lunch Program, the School Breakfast Program, the Food Stamp Program, the Special Supplemental Food Program for Women, Infants and Children (WIC), the Child and Adult Care Food Program, the Summer Food Service Program for Children and the Nutrition Education and Training (NET) Program. Several have demonstrated significant, positive effects on the nutritional status of children and their ability to learn in school. However, under-funding, red tape and misconceptions about these programs have limited their reach and potential.

In order to ensure that the nation's children grow up healthy and ready to learn, it is imperative that steps be taken to build on the infrastructure of child nutrition programs. No single agency, organization, school administrator, health professional or parent can — or should — singlehandedly, accomplish this goal. Success depends on the ability of these diverse groups, all of whom share a stake in children as America's future, to collaborate, cooperate and combine resources and expertise. Action areas include:

- Increasing funding for and expanding child nutrition programs with proven effectiveness such as WIC, Food Stamps, National School Lunch, School Breakfast, Summer Food Service, Child and Adult Care Food and the NET programs.
- Reducing the red tape and administrative requirements for the School Breakfast and Lunch Programs and eventually implementing a Universal School Breakfast and Lunch Program.
- Expanding and enhancing child nutrition education initiatives.

- Promoting the interconnectedness of children's health and ability to learn in school so that policies and programs in these areas work with one another.
- Encouraging the development of innovative nutrition programs that involve children, families, educators, dietitians and others working at the community level.

It is our hope that this report will help raise awareness and spur movement in the area of children's nutrition. It is in all of our interests that the nation's youth have the opportunities and resources they need to eat to learn and learn to eat.

Introduction

Children of all socioeconomic levels are at-risk for poor nutrition. Some children do not get enough to eat each day because their families lack money to buy sufficient amounts of food. Other children consume enough (or too much) food, but have diets high in fat, sugar and sodium that put them at risk for becoming overweight or developing heart disease and other chronic illnesses. Furthermore, as the number of parents in the workforce increases, more and more children are being left to fend for themselves for meals and snacks.

Hunger* and poor nutrition in America are on the rise (see box, page 2). One key reason is an increase in the number of families living in or near poverty. In 1990, more than 11 million children — 18 percent — lived in households with incomes below the poverty level ($12,675 for a family of four in 1990) compared to 16 percent in 1980. This represents an increase of 14 percent over the decade, a rise that cuts across racial and ethnic groups.[1] Meanwhile, recent surveys by the U.S. Conference of Mayors and the Food Research and Action Center's (FRAC) Community Childhood Hunger Identification Project have identified an increasing incidence of hunger among children and families in the United States.

Whatever the exact cause of poor nutrition or hunger among children, the consequences can be serious. In addition to physical problems, studies have uncovered a link between nutrition and learning in children indicating that well-fed children learn better than poorly nourished children. Researchers also know that children's eating habits and attitudes about food develop early and can last a lifetime. In light of this information, anyone who cares about children's health or education should care about their nutritional status. In February 1990, President Bush and the Governors established National Education Goals. The first goal states that, by the year 2000, "all children in America will start school ready to learn." To achieve this ambitious objective, action is required on several fronts. Nutrition is one.

This report reviews some of what is known about the link between nutrition and learning in children and between nutrition education and eating habits. It describes several public and pri-

* Hunger has been defined as the "physiological and psychological state resulting from insufficient food intake to meet immediate energy needs." (Meyers, A., Sampson, A., Weitzman, M. "Nutrition and Academic Performance in School Children." *Clinics in Applied Nutrition*, 1(2), April 1991. p. 13).

vate initiatives underway to address children's nutritional status and examines their effectiveness and deficits. Finally, it offers action steps that government, school staff, health professionals and parents can take to ensure that children are well-educated about good nutrition and well-fed. There is no quick fix for poor nutrition among children in the United States. Nevertheless, progress can be made if this nation commits itself to providing children with the resources they need to eat to learn and learn to eat.

How Big a Problem is Poor Nutrition in America?

- Each year, the U.S. Conference of Mayors conducts a survey on hunger and homelessness in more than two dozen cities across the country. The 1992 survey found that, during the previous year, overall requests for emergency food assistance increased by an average of 18 percent from 1991. The number of requests from families with children rose by 14 percent. However, a full 21 percent of the requests for emergency food assistance are estimated to have gone unmet.[2]

- A survey conducted by the Food Research and Action Center's (FRAC) Community Childhood Hunger Identification Project and released in 1991 found that 1 out of every 8 children under age 12 living in the United States is hungry. In addition, the survey found that approximately 6 million more children are at-risk of hunger because their families are experiencing food shortage problems. Taken together, approximately one out of every four children under age 12 in the United States lives in a family that has experienced at least one food shortage problem in the past twelve months.[3]

- Strong evidence exists that nutrition-related disorders and health conditions related to poor nutritional status are greater among low-income households than among the rest of the population. Lack of funds to buy sufficient amounts of food is the main reason for their poor nutritional status.[4] According to the U.S. Department of Health and Human Services' "Healthy Children 2000," growth retardation in preschool children may especially reflect the adequacy of a child's diet. Low-income children experience growth retardation at as much as three times the rate of their non-poor peers. They are also more likely to suffer from iron deficiency, which can adversely affect growth and development.

- According to one study on breakfast consumption patterns for 10 year-olds, a full 16 percent of all children skipped breakfast. They never compensated for it later in the day and, consequently, had lower daily nutrient intakes than those who did have breakfast.[5]

- Between 1984 and 1991 there was a 42 percent increase (from 24 percent to 34 percent) in the number of children ages 3 through 17 who were considered overweight.[6] Not only can being overweight cause children to have low self-esteem and related problems, but new research shows that being overweight during the teenage years can lead to life-threatening chronic diseases such as heart disease in adulthood, even if the youngster ultimately loses the excess weight.

Eat To Learn: How Much Do We Know About The Link Between Nutrition And Learning In Children?

The premise that nutrition affects children's ability to learn is not new. The link has been recognized for some time through anecdotal evidence and, more recently, through controlled research studies. Nutrition plays a role in children's development from early on — even before they are born — and continues to be an influential factor throughout early childhood, the school years and into adulthood. Of course, other environmental factors such as poverty, family problems, and access to health care also have an impact on children during these years. Nevertheless, poor nutrition carries its own set of serious consequences and warrants individual attention.

The Prenatal Years

Important brain growth and anatomic development begins at conception and occurs until at least the fourth year of life. Nutrition is just one of many factors that affect a woman's pregnancy outcome. On April 30, 1992, at a hearing before the U.S. House of Representatives' Select Committee on Hunger, T. Berry Brazelton, M.D., founder and former Chief of the Child Development Unit at Children's Hospital in Boston, Massachusetts explained that:

> *Considerable evidence shows that maternal malnutrition during the prenatal period, or infant malnutrition early in life, can produce lasting damage to the structure and function of the organs of the body, most notably the brain. ...From the time of conception to approximately 2 years of age, the brain grows to about 2/3 of adult size. ...Deficits during this period will probably never be made up later..*[7]

Inadequate weight gain during pregnancy can increase the risk of having a low birthweight baby (under 5.5 pounds). Low birthweight infants are more likely to have hearing, vision or learning problems and to require special education services. Recent research indicates that 15 percent of very low birthweight children (less than 3.5 pounds) and nearly 5 percent of low birthweight children require special education, compared to 4.3 percent born at normal birthweights.[8] The additional special education costs each year for all children born low birthweight is estimated to be $370.8 million.[9]

The relationship between good nutrition during pregnancy, infancy and childhood and physical and cognitive development has been documented in studies of the Special Supplemental

Food Program for Women, Infants and Children (WIC), a program for low-income women and children at nutritional risk. A five year national evaluation of WIC found that infants born to mothers who participated in WIC during pregnancy had larger head circumferences at birth than those of comparable women not on WIC.[10] The same study found that young children whose mothers received WIC when they were pregnant scored significantly higher on vocabulary tests than those children whose mothers did not receive WIC benefits.[11]

Early Childhood and the School Years

Hunger and poor nutrition have both physical and psychological manifestations in children. The World Health Organization has labeled the growth of children as one of the best indicators of the health and nutritional status of a community. The physical impact of undernutrition* on children is visible in several forms. Stunting, defined as low height-for-age, is considered the key indicator of chronic undernutrition. Stunting is highest for low-income children in the United States. Failure to Thrive children — children whose weight-for-height or weight-for-age are very low — tend to be from poor families.[12] The problem with relying on these physical symptoms to identify poorly nourished children is that the learning-related effects set in before the growth related consequences appear.[13]

In a 1990 Carnegie Foundation survey of teachers, more than half of the respondents said "poor nourishment" among students was a problem at their school.

The psychological and cognitive effects of hunger and poor nutrition are more diffuse. Many educators know from experience that when children are hungry or undernourished, they tend to be irritable, apathetic and lethargic. They often have little energy and have difficulty concentrating, all factors that can interfere with learning. In a 1990 Carnegie Foundation survey of teachers, more than half of the respondents said "poor nourishment" among students was a problem at their school.[14] Indeed, stories abound about children who fill school health rooms around mid-morning complaining of stomach aches or headaches. Often times, the children are not really sick, but just hungry, and can be "treated" with a snack and sent back to class. Researchers have documented similar scenarios. One study focused on the relation of a mid-morning snack to behavior of nursery school children.

* Undernutrition can be the result of both the nutritional quality and quantity of food eaten. It results from "inadequate intake, absorption or utilization of nutrients or calories needed to provide optimal growth, development and function." (Meyers, A., Sampson, A., Weitzman, M. "Nutrition and Academic Performance in School Children." *Clinics in Applied Nutrition*, 1(2), April 1991. p. 13).

Results showed that giving preschool children juice at mid-morning can "relieve fatigue, reduce irritability and tension, and promote a feeling of satisfaction and well-being" among them during pre-lunch hours.[15]

Research has also identified a specific link between nutrition and learning in children. In one study of the effects of immediate hunger on fourth grade students, it was found that when the diet for the day was adequate in calories, there was a positive difference in their achievement tests' scores. Those with the most inadequate diets, as measured by protein intake, had the lowest achievement scores. Attendance and achievement were significantly and positively correlated with a majority of the nutrients for which there was an established Recommended Dietary Allowance. The nutrients with the highest correlations with achievement were iron and vitamin C. Total food energy was also highly correlated with achievement.[16]

In another study, laboratory experiments of healthy, well-nourished school-aged children found a negative effect of morning fasting on cognitive performance. A test of the speed and accuracy of response on problem-solving tasks given to children who did or did not eat breakfast found that skipping breakfast had an adverse influence on their performance on the tests.[17]

...iron deficiency substantially increases the risk of lead poisoning, particularly in young children. Iron deficient individuals absorb increased amounts of lead, and lead poisoning, even at very low doses, has a negative and lasting effect on children's development.

In studies of undernutrition, iron has been one of the most thoroughly researched nutrients. Iron deficiency and iron deficiency anemia are among the most prevalent nutritional problems in the United States, especially among young children. Iron deficiency in infancy causes permanent loss of IQ in later life. Iron deficiency anemia is twice as common in poor children between the ages of 1 and 2 than in the general population. Iron deficiency and anemia lead to shortened attention span, irritability, fatigue and difficulties concentrating. Consequently, anemic children tend to do poorly on vocabulary, reading and other tests.[18]

In addition, iron deficiency substantially increases the risk of lead poisoning, particularly in young children. Iron deficient individuals absorb increased amounts of lead, and lead poisoning, even at very low doses, has a negative and lasting effect on children's development. One study of first and second graders with elevated lead levels found that they had lower IQs, poorer speech and language performance and were more hyperactive/distracted.[19] Since low-income children are most likely to be iron deficient and to live in environments where lead exposure is more probable, it is particularly important for them to have sufficient iron intake.

Children who are hungry or undernourished also have more difficulty fighting infection. Therefore, they are more likely to become sick, miss school and fall behind in class. For some low-income children, school breakfast and lunch constitute the majority of their daily food supply. If they miss school, they may not be able to compensate and may end up perpetuating the cycle of poor nutrition, illness and developmental delay.

Because there exists a link between nutrition and learning in children, it is important to consider not only what children are — or are not — eating, but also why they make the food choices they do. Nutrition educators and others concerned about the health and well-being of children know that, hand-in-hand with efforts to ensure that children can eat to learn, must be efforts to ensure they learn to eat.

Learn to Eat: What Messages Are Children Receiving About Nutrition?

These days, nutrition education for children is more important than ever. With the rise in the number of working parents and the ubiquitous carry-out and fast-food establishments, children are eating more meals away from home.

These days, nutrition education for children is more important than ever. With the rise in the number of working parents and the ubiquitous carry-out and fast-food establishments, children are eating more meals away from home. According to one study, urban children obtain more than half of their calories outside the home.[20] Although these foods are convenient, they also tend to be high in fat and can increase children's risk of becoming obese and developing heart disease and other chronic diseases in adulthood. A recent study found that being overweight in adolescence increases the risk of heart disease in adulthood, even if the weight is eventually lost.[21]

Meanwhile, television, food packaging and other mediums bombard children with encouragements to buy foods, many of them unhealthful. A 1992 study by the Center for Science in the Public Interest (CSPI), a non-profit nutrition advocacy organization, found that 9 out of 10 food ads on Saturday morning television are for sugary cereals and candy bars, salty canned foods, fatty fast foods, chips and other unhealthful foods. Furthermore, in supermarkets, colorful children's cereals are located on the lowest shelves, sure to catch the eye of a passing child, if not the parent's.

Children learn about nutrition from what they observe around them and from their own experiences with food. One study of preschoolers found that they were better at describing what their parents ate than the parents were at describing what the kids

ate.[22] Children also acquire information from their school surroundings. Placing snack bars or vending machines that sell unhealthful foods on campus or serving children non-nutritious school breakfasts or lunches sends the message that eating healthfully must not be important. Furthermore, if school meals are served in overcrowded, run-down cafeterias, or if insufficient time is allotted for children to eat, that also indicates to them that eating well must not be a priority.

Studies have measured the impact of nutrition education on children. In one study, sixty healthy children, 4 to 7 years of age, were interviewed to evaluate their health perceptions and to determine whether or not food and eating behavior were included as factors. A group of these children then participated in a 4-week nutrition education program. A subsequent interview found that after the course they significantly increased their perception that health and nutrition were related concepts.[23] Another study found that school-based nutrition education programs targeted toward very specific eating behaviors show promising results in regard to behavior and attitude changes of children and adolescents.[24]

Above all, researchers, dietitians and others involved in nutrition education believe that the most effective strategies are those that address increasing knowledge *and* changing attitudes and behaviors. That means nutrition education in the classroom should be coupled with a school cafeteria that serves as a laboratory where children can experiment with their newly acquired nutrition information. To that end, healthful foods should be readily available and promoted.

What Is Being Done So Kids Can Eat To Learn And Learn To Eat?

Evidence indicates that children's eating habits and attitudes toward food develop early and affect them for a lifetime. In addition, research has uncovered a strong link between nutrition and learning in children. Nevertheless, far too many of the nation's children are not properly nourished due, in part, to a lack of food and, in part, to a lack of understanding about how or why it is important for them to eat healthfully. Following is an overview of some activities underway to address these problems.

Federal Government Initiatives

The Food Stamp Program (FSP)

The Food Stamp Program is the nation's most important food assistance program. It is the only means-tested program available to all low-income people who meet eligibility standards regardless of their age, family composition or work status. The basic Food Stamp benefit level and eligibility rules are uniform nationally. Most Food Stamp households are very poor, with 92 percent having gross incomes below the poverty level. Families with children receive 83 percent of all Food Stamp benefits. Children constitute about half of all individuals on Food Stamps.[25]

The Food Stamp Program is administered nationally by the U.S. Department of Agriculture (USDA) and statewide and locally by welfare or social service agencies. Food Stamp recipients receive monthly coupons to supplement their household's food budget. Approximately 1 out of every 10 people in the United States receive Food Stamp benefits each month. Participation in the Food Stamp Program has been found to improve nutrition for low-income households. According to the USDA, nutrients in home food supplies are increased 20 to 40 percent by Food Stamps. However, many Food Stamp households cannot purchase an adequate diet with the resources available to them.

The Special Supplemental Food Program for Women, Infants and Children (WIC)

WIC provides nutritious food, nutrition education and linkages to other health services to eligible pregnant, breastfeeding and postpartum women, and children up to age 5 who are deemed to be at "nutritional risk" and whose family income is below state and federal guidelines. WIC is not an entitlement program and, therefore, only serves as many eligible applicants as funds will permit. The FY 1993 appropriation for WIC was $2.86 billion and will support about 60 percent of those potentially eligible. The U.S. Department of Agriculture's Food and Nutrition Service distributes WIC funds to state agencies through a complex formula, and states are funded at varying levels.

Evaluations have shown that pregnant women who receive WIC benefits have lower rates of low birthweight births than similar women not on WIC. An April 1992 report by the General Accounting Office (GAO) estimates that WIC reduces the low birthweight rate by 25 percent and reduces the very low birthweight rate by 44 percent.[26] WIC also has been found to improve the nutritional status of young children. A 1987 article in the Journal of the American Medical Association reported that data from the Centers for Disease Control showed a 2/3 reduction in childhood anemia over a 10 year period and that WIC appeared to have contributed significantly to the decline.[27] The USDA conducted a study and calculated Medicaid savings using the full cost of any illness that started within 60 days after birth. This study found that for every dollar spent on pregnant women in the WIC program, the associated savings in Medicaid costs for both mother and newborn ranged from $1.92 to $4.21. In addition, GAO researchers calculated that for the initial investment of $296 million in WIC funding for 1990, the total savings in health and education related expenses over the next 18 years total $1.036 billion.

Child and Adult Care Food Program (CACFP)

The CACFP is designed to assure nutritious meals for children up to age 12, the elderly and certain handicapped children who participate in nonprofit, licensed child care centers and approved family and group day care homes. Day care home providers must be licensed to participate. Any institution that meets eligibility requirements can participate in the program. Centers and homes may receive funds for two meals and one snack per participant per day. Centers may also serve one additional meal or snack if the child is in attendance for eight hours or longer. The CACFP is an entitlement program, which means there is no limit on the

number of children that can be served. Children who attend child care centers receive meals either at full price, reduced price or for free, depending on their family income. All children who attend day care homes receive free meals. CACFP is administered federally by the U.S. Department of Agriculture's Food and Nutrition Service and at the state level by the state department of education or human services.

The funding and technical assistance provided by the program helps participating organizations to provide nutritious meals. Participating organizations are required to provide meals according to the nutritional standards set by USDA. A 1978 USDA study found that the CACFP provided meals and snacks that were significantly better in nutritional quality and variety of food than those served in non-participating centers. An additional benefit of the CACFP is that child care providers must be licensed in order to participate. This provides a way for parents to find reliable child care and for state agencies to regulate child care standards. A primary concern about the CACFP is that it reaches only a small portion of the children who could benefit from it.

National School Lunch (NSLP) and School Breakfast Programs (SBP)

The NSLP and SBP were authorized by the National School Lunch Act and by the Child Nutrition Act, respectively, to "safeguard the health and well-being of the nation's children through the service of nutritious school lunches and breakfasts and to increase consumption of domestic agricultural products."[28] The NSLP and SBP are entitlement programs with no limit on the number of children served. All public or private non-profit schools that meet eligibility requirements may participate. Household income is used to determine whether a child who attends a participating school will pay a substantial part of the cost for their breakfast or lunch or will receive a reduced-price or free meal. Meals must meet specific nutritional requirements in order to qualify for federal funds. Both programs are administered by the U.S. Department of Agriculture's Food and Nutrition Service in conjunction with state education agencies and local school boards.

In FY 1992, nearly 93,000 schools offered NSLP, while about half that many offered SBP. Approximately half of school lunches and 90 percent of school breakfasts are served free or at reduced price. Participation rates vary by age. Children in elementary school are most likely to participate in the NSLP and SBP, and those in high school are least likely to participate.

The National Evaluation of the School Nutrition Programs (NESNP), prepared by the U.S. Department of Agriculture and released in April 1983, is the most comprehensive evaluation of the NSLP and SBP to date. (A follow-up evaluation is expected in Spring of 1993). According to the evaluation, "students who participate in the School Lunch Program get more than nonparticipants of almost all nutrients that were examined." Four of the nutrients for which school lunch eaters showed higher intakes are ones typically deficient in the diets of school-age children: Vitamins A and B6, calcium and magnesium. In some respects this is not surprising. In order for schools to receive federal government subsidies for their School Lunch Program, they must serve lunches that meet specified meal pattern requirements. This includes specific numbers of servings of meat/meat alternates, bread/bread alternates, milk, and fruits/vegetables.

The NESNP survey also found that, "The most important impact of the School Breakfast Program is that when the program is available, it increases the likelihood that children will eat breakfast, and children who eat breakfast have significantly higher intakes of nutrients than children who skip breakfast." The study projected that over 600,000 students who normally skip breakfast would eat breakfast if it were available in their schools.[29]

The School Breakfast Program was the focus of one of the most important and frequently cited nutrition and learning studies. Meyers, Sampson et al. tested the hypothesis that participation in the School Breakfast Program by low-income children is associated with improvements in standardized achievement test scores and in rates of absence and tardiness. Children in grades 3 through 6 were studied in the Lawrence, Massachusetts public schools where the School Breakfast Program had just been introduced. They found that participation in the program contributed positively to the 1987 Comprehensive Tests of Basic Skills score, and reduced tardiness and absenteeism among these children.[30]

Both the School Breakfast and Lunch Programs have been found to positively impact school attendance. The Food Research and Action Center's (FRAC) Community Childhood Hunger Identification Project (CCHIP) survey found that low-income children were "less likely to have increased school absences if they got breakfast at school compared with those children who did not get breakfast at school. In addition, children who were at-risk of hunger were absent less often when they got breakfast at school versus not getting it there."

Summer Food Service Program for Children (SFSPC)

This program is designed to provide nutritious meals to low-income children while school is not in session. The SFSPC is an entitlement program, meaning there is no limit on the number of children that participating agencies can serve. At the national level, the program is administered by the U.S. Department of Agriculture's Food and Nutrition Service. State level agencies are usually departments of education. Local sponsors may be public or nonprofit school food authorities, public or non-profit private residential summer camps, and all units of local, municipal, county or state government. Program sponsors must serve "areas in which poor economic conditions exist." Areas qualify to serve all children meals at no cost if at least half of the children are eligible to receive free or reduced price school lunches. The program allows the serving of breakfast, lunch, dinner or snacks and follows the same meal pattern as the School Lunch and Breakfast Programs. Low participation rates due to insufficient numbers of program sponsors in needy areas are the primary concern about the SFSPC.

Nutrition Education and Training (NET) Program

NET provides nutrition education training to teachers and school food service personnel so they can teach children the relationship between food and health and can encourage good eating habits. The NET Program not only teaches the concepts of food as it relates to nutrition, but actually puts these concepts into practice in the school cafeteria. NET funds can be used to develop classes on food, diet and health, to teach cafeteria workers how to prepare more nutritious school meals, and to purchase instructional materials. In FY 1991, more than 4 million children, 103,000 teachers and 87,000 food service personnel participated in NET activities. The NET program is administered nationally by the U.S. Department of Agriculture's Food and Nutrition Service, which provides grants to state agencies that may spend them at the state level or allocate them to the local level.

A study funded by USDA and conducted by Abt Associates found that the NET program led to increased levels of nutritional knowledge and positively affected food preferences. The main concern about NET is its low funding level, which limits its reach and impact.

National Food Service Management Institute (NFSMI)

The National Food Service Management Institute was authorized by Congress and established with funding from the USDA in 1990. Located at the University of Mississippi in Oxford, the Institute serves as a resource center for child nutrition and related programs. Its goals include providing training and education to school and school food service personnel in developing cost-effective methods for delivering nutritious meals to students; establishing a national network of trainers to present workshops and seminars; and functioning as a clearinghouse for related information. NFSMI also seeks to expand nutrition education programs and to increase participation in and support for the child nutrition programs.

Building for the Future: Nutrition Guidance for the Child Nutrition Programs

The development of this booklet was mandated by Congress and recently completed by the USDA, in conjunction with the U.S. Department of Health and Human Services. It is intended to serve as a tool to ensure that children receive good nutrition and nutrition information. The booklet provides information about nutrition for teachers, parents, school administrators, school health personnel, and others involved in the National School Lunch Program and School Breakfast Program.

Non-Federal Government Initiatives

Recent years have witnessed an increase in the number of state and local level public and private child nutrition initiatives. Many schools have implemented programs to improve the nutritional quality of the foods they serve and have changed their purchasing practices. They now specify products with lower fat, salt and sugar, and, increasingly are replacing frying with baking. In other instances, school administrators, food service workers, nutritionists and others have joined together to develop nutrition programs and curricula for use with school meal programs. A few examples of activities are provided below. All cited collaboration and cooperation as key to their success.

The Training Table

In 1986, the staff of the Portland, Oregon Public Schools' Nutrition Services, determined to improve the nutritional status of school children, developed The Training Table. The program's breakfasts and lunches, which surpass the U.S. Dietary Guidelines, are offered as alternatives to the regular school meal fare. Originally promoted as a program to help student athletes perform at their best, the Training Table has attracted many non-athletes as well. Its success has been attributed to several factors. First, the Training Table is comprehensive. In addition to providing healthy food choices, it includes nutrition education, attractive food service carts and displays and an aggressive promotion program. Second, it is built on a foundation of cooperation and team spirit. It involves students, athletic teams, parents, food service workers, dietitians, and others. Third, the program is presented to students in a way that makes good nutrition relevant to their lives. The meals are sold on the promise that good nutrition can improve athletic performance, scholastic readiness, and even physical appearance. Over the years, The Training Table has become very popular within Oregon high schools and has captured the interest of school districts in many other states.

LunchPower!

The LunchPower! program included the development, implementation and evaluation of a healthful school lunch program. It was a collaborative effort involving the University of Minnesota School of Public Health, the Child Nutrition Section of the Minnesota Department of Education, and food service directors from four school districts in Minnesota. A team of registered dietitians, food service directors, and cook managers reduced the fat and sodium content of school lunches by modifying recipes and food preparation methods and by identifying and selecting vendor products that were lower in fat and sodium. To measure LunchPower!'s impact on lunch program participation rates in 34 elementary schools, the researchers measured student participation before and after the program's implementation. They found no reduction in participation levels. Although the LunchPower! creators did not have an opportunity to develop a complementary classroom nutrition education curriculum, they believe that it would "enhance(s) the likelihood that students will adopt healthful dietary practices."

Healthy E.D.G.E.

The School Food Service Foundation of the American School Food Service Association developed the "Healthy E.D.G.E.: Eating, Dietary Guidelines and Education," with primary funding from the Public Health Service of the U.S. Department of Health and Human Services. The program includes a video tape and a "how-to" manual highlighting successful, cost-effective ways to incorporate the U.S. Dietary Guidelines into school food service. It also emphasizes the importance of building teams of people from the school and community who will work together to promote the relationship between diet and health and help develop a program of activities to improve the nutritional health of students. Healthy E.D.G.E. mini-manuals have been developed that address specific topics such as "Rewards and Recognition" and "Balancing Costs and Calories."

Changing the Course

The American Cancer Society has produced a set of nutrition education curricula for primary, intermediate and secondary level students. The classroom materials include teacher outlines, visual aids and interactive student handouts. The unique feature of this program is that it is linked with a manual for school food service personnel that guides them through menu modification, recipe development, purchasing, production and marketing of the healthy meals for students and staff. This program allows teachers to introduce the dietary guidelines in conjunction with the modeling of the guidelines in the school cafeteria.

What More Can We Do To Ensure Children Eat To Learn And Learn To Eat?

In order to capitalize on the strengths of existing child nutrition programs in providing nutritious foods and ultimately affecting children's learning abilities, efforts are needed to: increase program participation, reduce cumbersome red tape, ensure that meals follow the U.S. Dietary Guidelines, and increase nutrition education efforts. Clearly, no single government agency, organization, school administrator, health professional or parent can, singlehandedly, accomplish these tasks. Only through cooperation and collaboration between those who care about children's health and education can meaningful progress be made.

Participation Rates

As mentioned previously, the School Breakfast (SBP) and Lunch Programs (NSLP), the Child and Adult Care Food Program and the Summer Food Program are entitlement programs. Consequently, there is no limit on the number of children that can be served. However, many eligible schools, sponsors and children are not participating in these programs because of burdensome administrative requirements, logistical barriers and misconceptions.

...over 200 schools have dropped out of the school lunch and breakfast programs in the last two years. When a school drops out of these programs, all students in the school, including low-income youths, are denied access to a nutritious school breakfast or lunch.

According to the American School Food Service Association, over the past decade, it has become increasingly burdensome for schools to participate in the school lunch and breakfast programs. Federal subsidies have been reduced; USDA 'bonus' commodities have vanished; the administrative complexity and costs have increased dramatically; and state and local support for education programs has diminished. Consequently, over 200 schools have dropped out of the school lunch and breakfast programs in the last two years. When a school drops out of these programs, all students in the school, including low-income youths, are denied access to a nutritious school breakfast or lunch.[31] The U.S. General Accounting Office is currently conducting a survey of schools that have withdrawn from the National School Lunch Program to identify the factors that led to that decision.

In FY 1992, NSLP was offered in nearly 93,000 schools and fed approximately 24.5 million students each day. Only about 50,000 schools participated in SBP, serving less than 5 million students. Efforts to increase school breakfast availability have resulted in 18 states adopting state school breakfast mandate laws which generally require schools with more than a certain proportion of low-income children to operate breakfast programs. Other states have passed laws that act as incentives for schools to start breakfast programs by defraying start-up costs. Nevertheless, school breakfast is still not available to many children who could benefit from it.

The most common reasons schools give for not offering breakfast can be addressed:

- **"The breakfast program will require juggling bus schedules or the exact time the school day starts. It also would require making arrangements for students who come to school during breakfast but who do not wish to participate in the program."** Many schools have found ways to accommodate the breakfast program without strain on their daily schedules. Breakfast requires less time than

lunch. School bus arrival times can be staggered to facilitate speedy service. Teachers and volunteers are often supportive and voluntarily provide supervision.

- **"Labor and other costs are prohibitive."** In reality, school breakfast programs can be run with little or no additional local funding. Federal reimbursement and student payments are generally adequate to cover breakfast costs. Schools that serve lunch generally have equipment and facilities necessary to serve school breakfast. Those that do not can apply to the federal government for school breakfast start-up grants.
- **"Schools should not have to be responsible for feeding children breakfast on top of everything else they do. Furthermore, it is an important family ritual for parents to eat breakfast with their children in the morning."** A good breakfast is key to a child's ability to learn in school. Most of the children who eat breakfast at school are not substituting it for another breakfast, but are eating a meal they otherwise would forgo. The bottom line is that children must be well-fed in order to learn, and breakfast, as the first meal of the day, is particularly important in that regard.

In schools that offer breakfast and lunch, student participation is not as high as it could be for several reasons. The National Evaluation of the School Nutrition Programs (NESNP) found that the price students paid for the meal was the most important variable in deciding whether or not to participate in the NSLP and SBP. Students who were required to pay less were more likely to participate. However, it has been estimated that 4.2 million eligible poor students are not applying for free and reduced-price school meals. Some students see the programs as being for low-income children only, even though this is not true. That resulting "stigma" associated with participation deters many children from taking advantage of the SBP and NSLP. Some parents may also be put-off by the stigma. Another possible explanation is that parents are unaware that their children are eligible for such benefits. The NESNP found that 70 percent of the potentially eligible parents who did not apply thought they were ineligible. Other parents may be deterred by the free and reduced-price lunch application form, which tends to be quite complex. They may lack the time or skills to complete it, or may be intimidated by the form's language regarding fraud, the questions regarding income or the requirement of providing a social security number.

Another factor that can discourage children from participating in school breakfast and/or lunch is program operation. If school buses do not arrive in time for breakfast, children cannot eat. If children have inadequate time to eat, or if the cafeteria is unattractive or overcrowded, they may choose to eat elsewhere, such

School administrators and school food service personnel must work together to create an environment that encourages children to participate in NSLP and SBP.

as at the nearby fast food restaurant, snack bar or vending machine. If foods of low nutritional value are offered for sale individually, students may not choose a complete meal for which nutrition standards have been adopted. School administrators and school food service personnel must work together to create an environment that encourages children to participate in NSLP and SBP.

Several other child nutrition programs are not being used to their full potential because of a lack of sponsors or, in the case of WIC, lack of funding. During FY 1992 approximately 1.9 million children participated in the Summer Food Service Program. With approximately 13 million low-income children receiving school lunches each day during the school year, it is important to question where many of the neediest children are getting their meals when school is out of session. The Child and Adult Care Food Program (CACFP) serves just over 1 million children each day. According to the Food Research and Action Center's (FRAC) Campaign to End Childhood Hunger, that leaves millions of low-income and rural children who are currently enrolled in family day care homes without access to CACFP. In the case of Food Stamps, the ratio of food stamp participation to the number of people in poverty has declined. FRAC estimates that between 40 and 60 percent of the households that are eligible to receive food stamps are not participating in the program.[32] Finally, the WIC Program, unlike other child nutrition programs, is not an entitlement. Thus, many pregnant women and children who are deemed eligible for WIC cannot receive benefits. It is estimated that the 1993 funding level will support an average monthly caseload of approximately 5.8 million WIC participants, or approximately 60 percent of those potentially eligible.

To increase participation in child nutrition programs, several steps are required including:

Government

- Raise reimbursement levels for child nutrition programs including the School Breakfast and Lunch Programs so that schools can afford to produce more healthful and nutritious meals.
- Increase funding for the Nutrition Education and Training (NET) Program.
- Enact a Universal School Breakfast and Lunch Program as part of the 1994 Child Nutrition Reauthorization bill, to be phased in by the year 2000. Under a universal program, all children would be entitled to a breakfast and lunch without charge at the point of service. This would help erase the stigma associated with the programs, simplify

the paperwork for schools and parents, enable schools to focus time and resources on meeting the U.S. Dietary Guidelines, thereby enhancing nutrition education and increasing participation.

- Fully fund WIC. (President Clinton's economic package would phase in full funding for WIC by 1996 through a special appropriation of $75 million for FY 93 and subsequent increases in appropriations of $318 million in FY 1994, $532 million in FY 1995, and $800 million in FY 1996).
- Fund projects that examine and address barriers to instituting school breakfast programs.
- Increase outreach and expansion efforts for all child nutrition programs. This includes promoting, publicizing, and seeking schools and sponsors to implement under-utilized programs such as the School Breakfast Program, the Summer Food Service Program for Children and the Child and Adult Care Food Program, and increasing the availability of start-up monies.
- Improve access to and benefit levels for the Food Stamp program.

Schools, School Administrators, Food Service Workers and Teachers

- Start a School Breakfast Program and/or Summer Food Service Program in your school/community.
- Encourage parents to enroll their children in the school's breakfast and lunch programs because they affect their child's ability to learn. Hold a "briefing" to discuss the benefits of the programs and consider including a "forum" where parents can receive assistance in completing the application forms.
- Keep parents involved in the child nutrition programs by sending home flyers about them and through activities such as a monthly parent/child breakfast.
- Encourage children's participation in school breakfast and lunch by making the cafeteria an attractive and inviting place to eat and allowing sufficient time for them to eat.
- Promote school breakfast and lunches as being for all students, not just low-income children or those in elementary school.
- Consider using "direct certification" for school breakfast and lunch programs. This enables schools to certify children as eligible for free or reduced price meals by obtain-

ing pertinent information directly from local Food Stamp or Aid to Families with Dependent Children (AFDC) offices.

Dietitians, Nutritionists and Health Professionals

- Encourage schools to adopt a breakfast program.
- Work with parents, teachers and others for expansion of the Summer Food Service Program and Child and Adult Care Food Program in your area.
- Encourage/assist schools with the development of promotional materials for students and their parents about the school lunch and breakfast programs.

Parents

- Encourage your children to participate in the school's breakfast and lunch programs.
- Encourage your children's school to adopt a school breakfast program.
- Work with the school to promote an environment that encourages school meals and eating healthfully. For example, advocate for increased time for children to eat breakfast and lunch and for closure of snack bars.
- Contact your elected officials and voice your support for expansion of the Summer Food Service Program and Child and Adult Care Food Program in your area, as well as for increased funding for the School Breakfast and Lunch Programs, WIC and NET.

Red Tape

Extensive paperwork and red tape have become significant problems both for schools that participate in child nutrition programs and for families trying to enroll their children in the programs.

According to Dorothy Caldwell, president-elect of the American School Food Service Association, the paperwork requirements of the child nutrition programs have escalated at the same time funding for the basic infrastructure for the programs has declined. Schools receive cash reimbursements based on the family income of the children they serve. Thus, schools must carefully track the number of paid, free and reduced price meals served, as well as monitor the children who are receiving them to ensure that they meet the federal income eligibility criteria. School breakfasts and lunches also must follow specific meal patterns

established by the USDA, and schools must maintain careful records to provide proof they are doing so. Failure to follow these and other administrative requirements can lead to denials of reimbursement by the government.

Overall, paperwork reduction efforts have had little impact because they either do not work with highly mobile populations or require computer capability beyond the capacity of most small and medium sized districts.

In 1988, the National Center for Education Statistics Report revealed that school meal reporting requirements accounted for 44 percent of the reporting burden on schools. In 1989 Congress required USDA to convene a task force and discuss strategies for reducing the administrative burdens of the child nutrition programs. According to Dorothy Caldwell, only minor recommendations have been implemented. Most are undergoing further study by the USDA or have been dismissed as beyond the scope of paperwork reduction.[33] Overall, paperwork reduction efforts have had little impact because they either do not work with highly mobile populations or require computer capability beyond the capacity of most small and medium sized districts.

Bob Honson, nutrition services director for Portland, Oregon Public Schools, has echoed the frustration with the cumbersome paperwork associated with the school meal programs. He explained, "We share common frustrations with many school food service professionals in that the [child nutrition program]...focuses on accountability and regulation to the detriment of good nutrition. I am especially concerned that paperwork requirements will very soon force many school districts from the program." He cited, as an example, the extensive paperwork he must complete to provide meals for just 500 students for 8 days over winter break under the Child and Adult Care Food Program.

One way to reduce the paperwork burden is to adopt a Universal School Breakfast and Lunch Program. In a Universal System, all children would be entitled to a school breakfast and lunch without having to pay. It would eliminate the need for much of the paperwork now used to determine whether or not children are eligible for a free or reduced price meal. Monies originally used for administrative work could then be reallocated to other facets of the meal program, such as meeting the U.S. Dietary Guidelines and making school meals an integral part of the education process. In the meantime, schools can take an intermediate step and use direct certification to enroll children in school breakfast and lunch programs. Direct certification enables schools to certify children as eligible for free or reduced price meals by obtaining pertinent information directly from local Food Stamp or Aid to Families with Dependent Children offices. This also eases the paperwork burden on parents who otherwise must fill-out forms that they may find difficult or intimidating.

Steps required to reduce the red tape associated with administering the NSLP and SBP include:

Government

- Simplify the paperwork requirements for schools participating in child nutrition programs, while maintaining accountability to ensure that nutritious meals are served to children.
- Study the cost-effectiveness of enacting a Universal School Breakfast and Lunch Program, including the economics of reducing the paperwork and administrative burdens.
- Enact legislation that gives schools the option of adopting Universal School Breakfast and Lunch Programs.

Schools, School Administrators, Food Service Workers, Teachers, Dietitians, Nutritionists, Health Professionals, and Parents

- Contact your elected officials and advocate for establishment of a Universal School Breakfast and Lunch Program.
- Use direct certification for enrolling children in the School Breakfast and Lunch Programs.

Nutritional Standards

Although the School Breakfast and Lunch Programs are required to follow specific meal patterns, many nutritionists, school officials, advocacy groups, parents and others are concerned that the meals still are not as healthful as they should — or could — be.

Although the School Breakfast and Lunch Programs are required to follow specific meal patterns, many nutritionists, school officials, advocacy groups, parents and others are concerned that the meals still are not as healthful as they should — or could — be. One of the Year 2000 Goals set forward by the U.S. Department of Health and Human Services is to "increase to at least 90 percent the proportion of school lunch and breakfast services and child care food services with menus that are consistent with the nutrition principles in the U.S. Dietary Guidelines. That requires creating meals higher in fiber and lower in fat, saturated fat, cholesterol, sodium and sugar. Most specifically, school breakfasts and lunches would average 30 percent calories from fat.

A 1992 USDA study of the nutrient composition of the NSLP meals found that they averaged approximately 38 percent calories from fat.[34] (A more comprehensive USDA study will be completed Spring 1993.) Another recent informal study of 612 menus from elementary schools confirmed the popularity of relatively high-fat food items and found that children are offered a limited variety of vegetables.[35] The fat content of school meals can be reduced to meet the Dietary Guidelines, but several barriers must first be addressed.

- Over the past decade, federal budget cuts and cutbacks in free "bonus" commodities have made lunches increasingly expensive for schools. Current funding, adjusted for inflation, is only 58 percent of its initial 1946 level. Nutritious and unprocessed foods sometimes cost more to buy and store than convenience foods.[36]
- Many schools lack funds to train food service workers adequately to cook more nutritious meals.
- Concerns exist that children will not like modified, nutritious meals and will not eat them. This would mean a drop in participation, reducing the economic viability of the local program. Change has to be well thought out, gradual, and accompanied by nutrition education.
- Presently, it is required that whole milk be offered at school lunch along with low fat milk. Because whole milk can raise the percent of calories from fat in meals from five to eight percentage points, that policy warrants reevaluation.

There is also some concern that reducing the percent of calories from fat will negatively impact low-income children who rely on school meals for the majority of their daily food intake. If calories are lost by reducing the fat content of meals, they must be replaced with additional servings of other healthful foods.

The availability of "competitive foods" in schools is another critical issue. The USDA defines competitive foods as ones of minimal nutritional value, providing less than 5 percent of the Recommended Dietary Allowance (RDA) for 8 specified nutrients per serving. Federal regulations prohibit soda, chewing gum, hard candies and frozen desserts from being sold in food service areas during meal periods. This means that the foods can be served outside the cafeteria before and after meals.[37] The sale of these and other unhealthful foods in snack bars or vending machines in schools means school meals must compete for students' appetites, time and money.[38] Some food service workers have responded by offering snack foods as part of school meals, which can increase revenues, but may also compromise the nutritional quality of school meals. Congress allows state agencies and school-food authorities to control the sale of foods sold competitively with school lunch to a greater extent than the federal regulations stipulate. Only a few states and cities have banned the sale of non-nutritious competitive foods, a step that others may want to consider, or that may be an issue for legislation.

Steps that can be taken to improve the nutritional quality of school breakfast and lunches include:

Government

- Fund pilot projects to develop healthy menus for school meals that appeal to children and that can be distributed to school districts nationwide. Include menus that appeal to children with a variety of ethnic and cultural food preferences.
- Eliminate the requirement that schools offer whole milk to students. Congress should require that, more immediately, unflavored milk with 2 percent or less fat be the standard beverage and that, ultimately, unflavored milk with 1 percent or less fat become the standard beverage, along with other milk that schools choose to offer.
- Develop nutrition standards for school breakfasts and lunches and for foods purchased from commercial vendors that meet U.S. Dietary Guidelines.
- Establish policies to limit or eliminate the sale of foods of low nutritional value on school grounds.

Schools, School Administrators, Food Service Workers and Teachers

- Offer skim milk and other low-fat milk at breakfast and lunch.
- Offer only healthful foods in school vending machines or remove vending machines from schools.
- Create a team of food service staff, teachers, school administrators, students and health professionals to work together to develop strategies for improving the nutritional quality of school meals.
- Allow children sufficient time to eat school breakfast and lunch.
- Establish a policy whereby the school food service department manages and controls the sale of all foods in the school and on its campus.
- Make the school cafeteria an attractive and inviting place so that, when nutritious meals are available, children will want to visit the cafeteria to eat them.

Dietitians, Nutritionists and Health Professionals

- Contact your elected officials and encourage them to advocate improved nutritional standards for the School Breakfast and Lunch Programs, including elimination of the whole milk requirement and improved environments that encourage children to eat healthful meals.

- Meet with school officials and parents to devise strategies for improving the nutritional quality of school meals.
- Urge school administrators to remove foods of low nutritional value from school vending machines and snack bars or close them.

Parents

- Encourage school administrators to improve the nutritional quality of school breakfast and lunch.
- Urge school administrators to remove foods of low nutritional value from school vending machines and snack bars or close them.
- Contact your elected officials and encourage them to advocate improved nutritional standards for the School Breakfast and Lunch Programs, including elimination of the whole milk requirement.
- Encourage your children to eat healthfully so that they can learn better in school.

Nutrition Education

One of the Year 2000 Goals for the Nation is to "increase to at least 75 percent the proportion of...schools that provide nutrition education from preschool through 12th grade..." Currently, however, only two of the USDA's child nutrition programs are required to provide nutrition education directly to participants as part of their legislative mandates: The Nutrition Education and Training (NET) Program and WIC. NET has been lauded by those working in nutrition education as an effective tool for teaching children, cafeteria workers and others about the importance of healthy diets. The main complaint about NET is its low appropriation. The program was originally funded at $26 million in 1978. However, its annual appropriation was decreased to as little as $5 million for several years before being raised to $10 million for FY 1992 and FY 1993.

Nutrition education in school is most effective delivered in the context of a quality comprehensive school health education program and when school meal programs serve as a "laboratory" where students can practice what they have learned in the classroom.

Nutrition education in school is most effective delivered in the context of a quality comprehensive school health education program and when school meal programs serve as a "laboratory" where students can practice what they have learned in the classroom. All high schools and some elementary schools have adopted "offer vs. serve," which permits students to select three (or more) of the five foods offered at lunch. Offer vs. serve was developed by Congress as a way to reduce wasted food by allowing children to take only the foods they wanted. As long as they

chose three of the five components, their lunch would qualify for federal reimbursement. However, there is some concern that it may reduce the kinds of foods children eat. In order to address this problem, many schools offer choices within each meal component. Giving children these kinds of choices provides an opportunity for them to activate their understanding about food and nutrition. It also provides a training ground for teaching children how to make independent life-style choices in general.[39]

To avoid sending mixed messages about nutrition, schools must reinforce nutrition education programs with a school atmosphere that is conducive to eating healthfully.

Children are constantly developing attitudes about food and nutrition through what they see and experience. To avoid sending mixed messages about nutrition, schools must reinforce nutrition education programs with a school atmosphere that is conducive to eating healthfully. This includes examining the atmosphere in which meals are being served and controlling or eliminating the availability of less nutritious "competitive foods" on campus. Parents also must play a role in their children's nutrition education by eating healthfully and discussing nutrition at home.

Steps that can be taken to enhance nutrition education initiatives for children include:

Government

- Increase funding for the NET Program.
- Increase NET funds for child care centers and homes.
- Require choices within the meal pattern components as part of offer vs. serve.

Schools, School Administrators, Food Service Workers and Teachers

- Utilize available NET resources.
- Offer nutrition education as part of a comprehensive school health education program which addresses children beginning at an early age — preschool, elementary school, and high school students all need information and skills.
- Stress the impact nutrition has on a child's ability to learn in all nutrition education initiatives.
- Coordinate nutrition education in the classroom and school meals so that they complement one another.
- Send materials to parents about nutrition and how to talk to their children about it.
- Offer only nutritious foods throughout the school to avoid sending mixed messages to students about healthful eating.

- Utilize "offer vs. serve" to increase food choices and not impose limits in school meals.

Dietitians, Nutritionists and Health Professionals

- Offer to speak to students about good nutrition in classes and assemblies.
- Address the impact of nutrition on physical and cognitive development, including how eating well will help children learn.
- Meet with school administrators to discuss ways to build nutrition education into the school curriculum.
- Encourage schools to participate in NET sponsored activities.

Parents

- Set a good example for your children by eating healthfully.
- Talk with your children about the link between good nutrition and their physical and cognitive development, as well as its impact on their ability to concentrate and learn and school.
- Let your children help prepare meals and snacks so they can experiment with different foods.
- Expose your children to new foods regularly.
- Meet with school officials to discuss the availability and quality of child nutrition programs and to collaborate on strategies to expand and improve them.
- Contact your elected officials and tell them you support increased funding for the NET program.

Conclusion

> "President Clinton, in his inaugural address, stated that there is nothing wrong with America that cannot be cured by what is right with America. One part of what is right with our country is the dedication and vigor of people involved in providing nutrition to America's children; persons daily attacking the problems of hunger in this country. A hungry child cannot learn. Each day in every school lunchroom in the United States, we change a life for the better and we invest in our nation's future. Each person who has a hand in feeding children a nutritious meal should be commended." The Honorable Mike Espy, Secretary, U.S. Department of Agriculture

It is encouraging to see issues surrounding nutrition and learning in children receive attention from high level policymakers such as Secretary Espy. Such attention has not come a minute too soon. Hunger and poor nutrition in America are on the rise, and children are among those affected most by these trends. At one end of the scale, fully one out of every four children under 12 in the United States lives in a family that has experienced at least one food shortage in the past twelve months. At the other, there has been a 42 percent increase (from 24 to 34 percent) in the number of children ages 3 through 17 who were considered overweight. In light of the information contained in this paper about the importance of good nutrition to children's cognitive and physical development, these numbers are particularly troubling.

The good news is that many effective public and private child nutrition initiatives are in place. Together, they provide a solid infrastructure for addressing the nutritional needs of children. However, under-funding, red tape, misconceptions and other factors limit their reach and potential. None of these barriers is insurmountable. Success depends on the ability of diverse groups and individuals who care about children's well-being to work together to make good nutrition for youth a national priority. Policymakers, educators, health professionals, dietitians, parents and others who care about children and are willing to do something for them are "what is right with our country" when it comes to children's nutrition. It is our hope that this report will spur action to ensure that children have the resources they need to eat to learn and learn to eat.

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National Health/Education Consortium

Good health is a significant determinant of a child's ability to learn and succeed in school. The health and education sectors, however, have historically approached programs and services for children from different perspectives. Recognizing the need for better integration of health and education programs for children, the National Commission to Prevent Infant Mortality and the Institute for Educational Leadership organized the NATIONAL HEALTH/EDUCATION CONSORTIUM in May 1990.

The project is unique in that it has brought together leaders from 57 national health and education organizations, representing nearly 11 million constituents, to bridge the gap between the worlds of health and education and to generate unified action for children. Promoting the full potential of children and providing them with the best opportunities for success will require changes in the systems which currently provide health and education services. Reforms are needed to develop more collaborative and cohesive policies and programs, unify agencies and funding streams, and provide a more comprehensive approach to children's problems.

Toward this end, the NATIONAL HEALTH/EDUCATION CONSORTIUM's activities focus on three major goals: to improve public policy in addressing the need for a better coordinated health and education delivery system; to strengthen communication and dissemination of information between health and education activities and policymakers; and to identify exemplary program models and practices which more effectively integrate health and education services. The Consortium involves educators, health professionals, policymakers, administrators, civic leaders, advocates, and parents in its efforts to bring together the health and education communities in a more integrated fashion.

The Consortium is able to attract high profile business, political, health and education leaders to give visibility and implement its mission at the federal, state, and local levels. It does not represent any particular special interest group, but can bring to bear the weight of national association consortium members on behalf of its mission. In addition, the consortium creates state and local networks across the country that will plant the seeds for similar collaborative efforts at those levels.

The foundation of the Consortium's efforts can be found in the report, *Crossing the Boundaries between Health and Education*, which documents clinical research and programs that exemplify the relationship between children's health and their learning potential. To complement this report, the Consortium is releasing a series of papers which focus on various topics relating to health and education.

The NATIONAL HEALTH/EDUCATION CONSORTIUM is supported by The Prudential Foundation, the Honeywell Foundation, the AT&T Foundation, Metropolitan Life Insurance Company, and the Procter & Gamble Fund. Additional support has been provided by the U.S. Department of Health and Human Services, and the U.S. Department of Education.

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National Health/Education Consortium Members and Profiles

American Academy of Family Physicians: 66,000 physicians

American Academy of Pediatrics: 39,000 physicians

American Association of Colleges for Teacher Education: represents 700 member institutions teacher education programs

American Association of School Administrators: 18,517 school administrators

American College of Nurse-Midwives: 3,000 certified nurse-midwives

American College of Obstetricians and Gynecologists: 29,848 obstetricians and gynecologists

American Dental Association: 138,217 dentists

American Federation of Teachers: 750,000 teachers, para-professionals (teacher aides), school-related personnel, healthcare workers, federal and state employees

American School Food Service Association: 65,000 food service professionals

American Hospital Association (MCH Section): 5,870 hospitals and physicians

American Indian Health Care Association: represents 36 programs and clinics which focus on the health care of American Indians

American Medical Association: 300,000 physicians

American Nurses Association: 201,000 registered nurses

American Public Health Association: 30,977 physicians, nurses, therapists, health technicians, health support personnel, and other health professionals

American School Health Association: 3,000 health educations, nurses, physicians, and dieticians

American Speech-Language-Hearing Association: 67,393 speech-language pathologists, audiologists, scientists, researchers, and educators

Association for the Care of Children's Health: 4,200 nurses, child life workers, and parent leaders

Association for Supervision and Curriculum Development: 153,000 teachers, school administrators, college professors, and school board members

Association of American Medical Colleges: 126 U.S. medical schools, 450 teaching hospitals, and 92 academic professional societies

Association of Maternal and Child Health Programs: represents maternal and child health programs in 50 states and U.S. territories

Association of Schools of Public Health: represents 13,000 deans, faculty, and students of schools of public health

Association of State and Territorial Dental Directors: represents 58 state and territorial dental directors.

Association of State and Territorial Health Officials: represents the 58 health officers from each of the United States and its territories.

Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN): 24,000 nurses

Council of Chief State School Officers: represents 56 public officials who head departments of elementary and secondary education in each state and extrastate jurisdiction

The Council of Great City Schools: represents 46 of the largest urban public school districts in the United States

The Elementary School Center: represents 500 child-serving professionals

Healthy Mothers, Healthy Babies Coalition: represents 95 non-profit health education groups, and state and local education groups

National Alliance of Black School Educators: 3,000 African-American teachers for Grades K-12

National Association for Asian and Pacific American Education: 594 members representing administrators, teachers, institutional aids, social workers, mental health workers, and students among others

National Association for the Education of Young Children: 77,000 members representing a wide range of early childhood professionals

National Association for Partners in Education: 5,5000 volunteers, presidents and executives of private businesses, teachers, and administrators

National Association of Children's Hospitals and Related Institutions: represents 108 hospitals

National Association of Community Health Centers: represents 600 health care facilities

National Association of Elementary School Principals: 36,000 elementary school principals, middle school principals, school superintendents, teachers, professors, and instructors

National Association of Hispanic Nurses: 1,000 Hispanic nurses

National Association of Pediatric Nurse Associates and Practitioners: 2,800 pediatric nurse associates and practitioners

National Association of School Nurses, Inc.: 5,800 school nurses

National Association of Secondary School Principals: 41,000 secondary school principals, administrators, guidance counselors, activities directors, and college professors

National Association of Social Workers, Inc.: 137,763 members in all fields of social work

National Association of State Boards of Education: represents 600 state boards of education and their members

National Association of WIC Directors: 624 state directors, nutrition coordinators, and local agency directors

National Black Nurses Association: 7,000 African-American nurses

National Coalition of Hispanic Health and Human Services Organizations (COSSMHO): 700 organizations serving the Hispanic population, representing Hispanic physicians, nurses, and students

National Community Education Association: 1,600 teachers, superintendents, administrators, community education directors and coordinators, faculty and administrators of teacher education institutions and programs, community activists, private businesses, and state administrators

The National Congress of Parents and Teachers: 6.8 million parents, K-12 classrooms teachers, principals, school administrators, and students

National Education Association: 2 million K-12 classroom teachers, professors, educational support personnel, and students

National Head Start Association: 150 nationwide agency members and 30 individual members

National Indian Education Association: 2,500 members, most of whom are Native American educators

National Medical Association: 16,000 minority physicians

National Mental Health Association: 550 local affiliate mental health associations representing mental health care providers, clients, and community health care centers

National Perinatal Association: 6,000 physicians, nurses, nurse-midwives, social workers, and consumers of perinatal services

National Rural Health Association: represents 1,750 community, migrant, and homeless health centers and their staffs

National School Boards Association: represents 52 state school board associations

National School Public Relations Association: 2,200 teachers, principals, administrators, retired teachers, students, and public relations personnel

Society for Neuroscience: represents 18,000 neuroscientists

Zero to Three – National Center for Clinical Infant Programs: represents 7,500 programs for high risk children and families, as well as individuals

This document does not necessarily reflect the viewpoints or positions of any of the Consortium's members.